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SUPERFUND DIVISION

March 23, 2012

Mr. Jason Gunter
Remedial Project Manager
U.S. Environmental Protection Agency
Region 7 - Superfund Branch
901 North 5th Street
Kansas City, KS 66101

Re: National Mine Tailings Site Progress Report

Dear Mr. Gunter:

As required by Article VI, Section 51 of the Unilateral Administrative Order (Docket No. CERCLA-07-2006-0231) for the referenced project and on behalf of The Doe Run Company and NL Industries, Inc., the progress report for the period February 1, 2012 through February 29, 2012 is enclosed. If you have any questions or comments, please call me at 573-638-5020 or Mark Nations at 573-518-0600.

Sincerely,

A handwritten signature in black ink, appearing to read "Ty L. Morris", is written over a horizontal line.

Ty L. Morris, P.E., R.G.
Vice President

TLM/jms
Enclosure

c: Mark Nations – TDRC
Matt Wohl – TDRC (electronic only)
Kevin Lombardozzi – NL Industries, Inc.
John Kennedy – City of Park Hills
Norm Lucas – Park Hills – Leadington Chamber of Commerce
Kathy Rangen – MDNR
Tim Skoglund – Barr Engineering



National Mine Tailings Site
Park Hills, Missouri
Removal Action - Monthly Progress Report
Period: February 1, 2012 – February 29, 2012

1. Actions Performed and Problems Encountered This Period:

- a. Work at the site continued on the task of removing excess slope fill from the main chat pile. This work focused on removing excess slope fill to construct this area to the final subgrade elevations shown on the Construction Drawings. As of the end of the period, it is believed that work on this task has been completed. However, the top has not been surveyed to determine if any additional work is needed. The survey work will be completed during the next period.
- b. Work at the site continued on the task of stripping mine waste and contaminated soil from the Thin Tailings Area. This work focused on the area between Northing Coordinates N736750 and N739000 from the haul road to the material that was left in place over top of the sewer line along Flat River. Last period this work had been stopped as a result of the stripping activities lowering the elevations of the area to similar elevations as the process water swale that flows across the area. XRF testing indicated that the soil still had significantly elevated levels of lead. Following the testing, Doe Run submitted a request to stop stripping activities in this area to avoid constructing a large ponding area. Instead, Doe Run proposed to grade the area to drain without doing any further stripping and then covering the area with rock using the rocking scheme that is being used on the main chat pile and slopes around the site. This request was approved by the EPA project manager.

Following EPA approval, work on this area began on the task of covering the area with rock. This included placing a 6-inch layer of crushed rock filter on the graded surface and a 12-inch layer of slope riprap on top of the crushed rock filter. As of the end of the period, the portion of this area between Northing Coordinates N736750 and N738000 had been covered with this rocking scheme.

- c. Work at the site also continued on the task of modifying the southern slope of the stormwater detention basin in the West Area. This work focused on the task of installing the extension to the storm sewer outlet, finishing construction of the berm, and rocking the portions of the berm that had been verified to have been constructed to the final subgrade elevations. As of the end of the period, a majority of the southern slope had been rebuilt, the extension had been installed, and work had begun on the task of rocking the portions of this area that had been verified to have been constructed to the final subgrade elevations.
- d. Work at the site also continued on the task of designing the portion of the Piramal Glass property located west of the Lee Mechanical office building. This work focused on developing a design that will increase the capacity of the stormwater detention of the area without requiring any material to be removed from the area. As of the end of the period, work on this task is almost complete. Once this effort has been completed, the Construction Drawings will be modified and sent to EPA.
- e. Work at the site continued on the task of meeting with the landowners who may be affected by the removal action activities. This included meeting with landowners who signed an access agreement prior to April 1, 2008, which needed to be amended, as well as landowners who have not signed agreements. As of the end of the period, the following had been accomplished:

Landowners that own property within the site boundary

Total number of landowners = 22

Landowners who signed an access agreement prior to 04/01/08 = 18

Landowners who signed an access agreement after 04/01/08 = 1

Landowners who are reviewing the access agreement = 3

Landowners who have refused to sign the access agreement = 0

Landowners who still need to be met with concerning the access agreement = 0

Total number of landowners who need to sign the amendment letter = 18

Landowners who have signed the amendment letter = 16

Landowners who are reviewing the amendment letter = 1

Landowners who refused to sign the amendment letter = 0

Landowners who still need to be met with concerning the amendment letter = 1

(Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

Landowners that own property immediately adjacent to the site boundary

Total number of landowners = 27

Landowners who signed an access agreement prior to 04/01/08 = 11

Landowners who signed an access agreement after 04/01/08 = 6

Landowners who are reviewing the access agreement = 4

Landowners who have refused to sign the access agreement = 3

Landowners who still need to be met with concerning the access agreement = 3

Total number of landowners who need to sign the amendment letter = 11

Landowners who have signed the amendment letter = 11

Landowners who are reviewing the amendment letter = 0

Landowners who refused to sign the amendment letter = 0

Landowners who still need to be met with concerning the amendment letter = 0

(It is not anticipated that it will be a challenge to work around the property owned by the three landowners that refused to sign the access agreement based on location of the property in relationship to the work that needs to be completed. Changes in the total number of landowners and the total number of landowners who need to sign the amendment letter are as a result of sales that occurred since the meetings with the landowners began.)

2. Analytical Data and Results Received This Period:

- a. During this period, water samples were collected at the sampling locations identified in Appendix C of the Removal Action Work Plan where water was present. Copies of the analytical results from the last sampling event are included with this progress report.

3. Developments Anticipated and Work Scheduled for Next Period:

- a. Continue rocking the portion of the Thin Tailings Area between the haul road and the sewer line from Northing Coordinate N736750 to Northing Coordinate N739000.
- b. Finish removing slope fill from the top of the main chat pile.
- c. Begin rocking the top of the main chat pile.
- d. Finish installation of the extension to the City of Park Hills' stormwater pipe.
- e. Finish constructing the south slope of the stormwater detention pond in the West Area.
- f. Finish rocking the south slope of the stormwater detention pond in the West Area.
- g. Finalize the detailed design on the portion of the Piralal Glass property located west of the Lee Mechanical office building.
- h. Begin construction activities on the portion of the Piralal Glass property located west of the Lee Mechanical office building.
- i. Continue constructing the eastern buttressing slope between Northing Coordinates N737900 and N738400.
- j. Complete monthly water sampling activities as described in the Removal Action Work Plan.
- k. Complete air monitoring activities as described in the Removal Action Work Plan.
- l. Continue efforts to contact and meet with the landowners identified as potentially being affected by the removal action activities so that access agreements can be obtained.

4. Changes in Personnel:

- a. None.

5. Issues or Problems Arising This Period:

- a. None.

6. Resolution of Issues or Problems Arising This Period:

- a. None.

End of Monthly Progress Report

March 22, 2012

Allison Olds
Barr Engineering Company
1001 Diamond Ridge
Suite 1100
Jefferson City, MO 65109
TEL: (573) 638-5007
FAX: (573) 638-5001



RE: National MTS-25/86-0003

WorkOrder: 12021051

Dear Allison Olds:

TEKLAB, INC received 1 sample on 2/24/2012 9:41:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com



Report Contents

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

This reporting package includes the following:

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Chain of Custody	Appended

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Abbr Definition

- CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
- DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
- DNI Did not ignite
- DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
- ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
- IDPH IL Dept. of Public Health
- LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
- LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
- MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.
- MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
- MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
- MW Molecular weight
- ND Not Detected at the Reporting Limit
- NELAP NELAP Accredited
- PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
- RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
- RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
- SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
- Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
- TNTC Too numerous to count (> 200 CFU)

Qualifiers

- | | |
|--|---|
| # - Unknown hydrocarbon | B - Analyte detected in associated Method Blank |
| E - Value above quantitation range | H - Holding times exceeded |
| M - Manual Integration used to determine area response | ND - Not Detected at the Reporting Limit |
| R - RPD outside accepted recovery limits | S - Spike Recovery outside recovery limits |
| X - Value exceeds Maximum Contaminant Level | |



Case Narrative

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Cooler Receipt Temp: 1.4 °C

This report was revised on 03/22/2012 per Erin Dietrich's request. The reason for the revision is correct the Method Blanks for Sulfate and TDS on the QC report. Please replace report dated 03/01/2012 with this report. MLA 03/22/2012

Locations and Accreditations

Collinsville		Springfield		Kansas City	
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	Address	3920 Pintail Dr Springfield, IL 62711-9415	Address	8421 Nieman Road Lenexa, KS 66214
Phone	(618) 344-1004	Phone	(217) 698-1004	Phone	(913) 541-1998
Fax	(618) 344-1005	Fax	(217) 698-1005	Fax	(913) 541-1998
Email	jhriley@teklabinc.com	Email	kmclain@teklabinc.com	Email	dthompson@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2013	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2013	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2012	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2012	Springfield
Arkansas	ADEQ	88-0966		3/14/2012	Collinsville
Illinois	IDPH	17584		4/30/2012	Collinsville
Kentucky	UST	0073		5/26/2012	Collinsville
Missouri	MDNR	00930		4/13/2013	Collinsville
Oklahoma	ODEQ	9978		8/31/2012	Collinsville

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Lab ID: 12021051-001

Client Sample ID: Nat-East

Matrix: AQUEOUS

Collection Date: 02/23/2012 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 375.2 REV 2.0 1993 (TOTAL)								
Sulfate	NELAP	100		226	mg/L	10	02/29/2012 17:57	R160599
STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED								
Lab pH	NELAP	1.00		8.14		1	02/24/2012 11:57	R160332
STANDARD METHODS 18TH ED. 2340 C								
Hardness, as (CaCO ₃)	NELAP	5		500	mg/L	1	02/24/2012 14:25	R160324
STANDARD METHODS 18TH ED. 2540 C (TOTAL)								
Total Dissolved Solids	NELAP	20		636	mg/L	1	02/27/2012 15:04	R160476
STANDARD METHODS 18TH ED. 2540 D								
Total Suspended Solids	NELAP	6	R	6	mg/L	1	02/27/2012 8:52	R160430
<i>% RPD was outside the QC limits due to low level results. When duplicate results for TSS are 20 mg/L or less and have a difference of no greater than the PQL, the results are considered within the precision of the test method and are reportable.</i>								
STANDARD METHODS 18TH ED. 2540 F								
Solids, Settleable	NELAP	0.1		< 0.1	ml/L	1	02/24/2012 11:51	R160354
STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON								
Total Organic Carbon (TOC)	NELAP	1.0		1.1	mg/L	1	02/24/2012 17:49	R160383
EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	02/25/2012 0:31	75468
Zinc	NELAP	10.0		72.0	µg/L	1	02/25/2012 0:31	75468
EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)								
Cadmium	NELAP	2.00		< 2.00	µg/L	1	02/27/2012 11:33	75482
Zinc	NELAP	10.0		93.8	µg/L	1	02/27/2012 11:33	75482
STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)								
Lead	NELAP	2.00	X	16.3	µg/L	1	02/28/2012 10:59	75467
STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA								
Lead	NELAP	10.0	X	58.1	µg/L	5	02/27/2012 18:41	75447



Sample Summary

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Lab Sample ID	Client Sample ID	Matrix	Fractions	Collection Date
12021051-001	Nat-East	Aqueous	5	02/23/2012 12:30



Dates Report

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Sample ID	Client Sample ID Test Name	Collection Date	Received Date Prep Date/Time	Analysis Date/Time
12021051-001A	Nat-East Standard Methods 18th Ed. 2540 F	02/23/2012 12:30	2/24/2012 9:41:00 AM	02/24/2012 11:51
12021051-001B	Nat-East EPA 600 375.2 Rev 2.0 1993 (Total) Standard Method 18th Ed. 4500-H B, Laboratory Analyzed Standard Methods 18th Ed. 2340 C Standard Methods 18th Ed. 2540 C (Total) Standard Methods 18th Ed. 2540 D	02/23/2012 12:30	2/24/2012 9:41:00 AM	02/29/2012 17:57 02/24/2012 11:57 02/24/2012 14:25 02/27/2012 15:04 02/27/2012 8:52
12021051-001C	Nat-East EPA 600 4.1.4, 200.7R4.4, Metals by ICP (Total) Standard Methods 18th Ed. 3030 E, 3113 B, Metals by GFAA	02/23/2012 12:30	2/24/2012 9:41:00 AM	02/27/2012 11:33 02/27/2012 18:41
12021051-001D	Nat-East EPA 600 4.1.1, 200.7R4.4, Metals by ICP (Dissolved) Standard Methods 18th Ed. 3030 B, 3113 B, Metals by GFAA (Dissolved)	02/23/2012 12:30	2/24/2012 9:41:00 AM	02/25/2012 0:31 02/28/2012 10:59
12021051-001E	Nat-East Standard Methods 18th Ed. 5310 C, Organic Carbon	02/23/2012 12:30	2/24/2012 9:41:00 AM	02/24/2012 17:49



Quality Control Results

<http://www.teklabin.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

EPA 600 375.2 REV 2.0 1993 (TOTAL)

Batch R160547 SampType: MBLK Units mg/L

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		< 75						02/29/2012
Sulfate	75		< 75						02/28/2012

Batch R160547 SampType: LCS Units mg/L

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	75		139	150	0	92.9	90	110	02/28/2012
Sulfate	75		139	150	0	92.7	90	110	02/29/2012

Batch R160599 SampType: MBLK Units mg/L

SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						02/29/2012

Batch R160599 SampType: LCS Units mg/L

SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		20	20	0	101.3	90	110	02/29/2012

Batch R160599 SampType: MS Units mg/L

SampID: 12021051-001B MS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		328	100	225.6	102.0	85	115	02/29/2012

Batch R160599 SampType: MSD Units mg/L

SampID: 12021051-001B MSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Limit 10	RPD Ref Val	%RPD	Date Analyzed
Sulfate	100		337	100	225.6	111.0	327.6	2.72		02/29/2012

STANDARD METHOD 18TH ED. 4500-H B, LABORATORY ANALYZED

Batch R160332 SampType: LCS Units

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lab pH	1.00		6.98	7.00	0	99.7	99.1	100.8	02/24/2012

Batch R160332 SampType: DUP Units

SampID: 12021051-001BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Limit 10	RPD Ref Val	%RPD	Date Analyzed
Lab pH	1.00		8.18				8.140	0.49		02/24/2012



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

STANDARD METHODS 18TH ED. 2340 C

Batch R160324 SampType: MBLK Units mg/L

SampID: MB-R160324

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO ₃)	5		< 5						02/24/2012

Batch R160324 SampType: LCS Units mg/L

SampID: LCS-R160324

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO ₃)	5		1000	1000	0	100.0	90	110	02/24/2012

Batch R160324 SampType: MS Units mg/L

SampID: 12021051-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Hardness, as (CaCO ₃)	5		880	400	500.0	95.0	85	115	02/24/2012

Batch R160324 SampType: MSD Units mg/L

SampID: 12021051-001BMDS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Hardness, as (CaCO ₃)	5		900	400	500.0	100.0	880.0	2.25	02/24/2012

RPD Limit 10

STANDARD METHODS 18TH ED. 2540 C (TOTAL)

Batch R160476 SampType: MBLK Units mg/L

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		< 20						02/27/2012
Total Dissolved Solids	20		< 20						02/27/2012
Total Dissolved Solids	20		< 20						02/27/2012

Batch R160476 SampType: LCS Units mg/L

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		1030	1000	0	103.2	90	110	02/27/2012

Batch R160476 SampType: LCSQC Units mg/L

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		980	1000	0	98.0	90	110	02/27/2012
Total Dissolved Solids	20		986	1000	0	98.6	90	110	02/27/2012

Batch R160476 SampType: MS Units mg/L

SampID: 12021051-001B MS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Total Dissolved Solids	20		1150	500	636.0	102.0	85	115	02/27/2012



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

STANDARD METHODS 18TH ED. 2540 C (TOTAL)

Batch	R160476	SampType:	MSD	Units	mg/L	RPD Limit	15			Date Analyzed
SampleID: 12021051-001B MSD										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Total Dissolved Solids	20		1140	500	636.0	100.8	1146	0.52		02/27/2012

STANDARD METHODS 18TH ED. 2540 D

Batch	R160430	SampType:	MBLK	Units	mg/L					Date Analyzed
SampleID: MBLK										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Suspended Solids	6		< 6							02/27/2012

Batch	R160430	SampType:	LCS	Units	mg/L					Date Analyzed
SampleID: LCS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Suspended Solids	6		92	100	0	92.0	85	115		02/27/2012
Total Suspended Solids	6		94	100	0	94.0	85	115		02/27/2012
Total Suspended Solids	6		95	100	0	95.0	85	115		02/27/2012

Batch	R160430	SampType:	DUP	Units	mg/L	RPD Limit	15			Date Analyzed
SampleID: 12021051-001B DUP										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Total Suspended Solids	6	R	9				6.000	40.00		02/27/2012

STANDARD METHODS 18TH ED. 5310 C, ORGANIC CARBON

Batch	R160383	SampType:	MBLK	Units	mg/L					Date Analyzed
SampleID: ICB/MBLK										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Organic Carbon (TOC)	1.0		< 1.0							02/24/2012

Batch	R160383	SampType:	LCS	Units	mg/L					Date Analyzed
SampleID: ICV/LCS										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Total Organic Carbon (TOC)	5.0		48.6	48.2	0	100.8	89.6	109.5		02/24/2012

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch	75468	SampType:	MBLK	Units	µg/L					Date Analyzed
SampleID: MB-75468										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Cadmium	2.00		< 2.00	2.00	0	0	-100	100		02/25/2012
Cadmium	2.00		< 2.00	2.00	0	0	-100	100		02/25/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100		02/25/2012
Zinc	10.0		< 10.0	10.0	0	21.0	-100	100		02/25/2012



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company
Client Project: National MTS-25/86-0003

Work Order: 12021051
Report Date: 22-Mar-12

EPA 600 4.1.1, 200.7R4.4, METALS BY ICP (DISSOLVED)

Batch 75468		SampType: LCS		Units µg/L						
SampID: LCS-75468										Date
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Analyzed	
Cadmium	2.00		47.6	50.0	0	95.2	85	115	02/28/2012	
Cadmium	2.00		48.6	50.0	0	97.2	85	115	02/25/2012	
Zinc	10.0		504	500	0	100.8	85	115	02/25/2012	
Zinc	10.0		468	500	0	93.5	85	115	02/25/2012	

Batch 75468		SampType: MS		Units µg/L					
SampID: 12021051-001DMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		40.7	50.0	0.3	80.8	75	125	02/25/2012
Zinc	10.0		533	500	72	92.2	75	125	02/25/2012

Batch 75468		SampType: MSD		Units µg/L				RPD Limit 20		
SampID: 12021051-001DMSD										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium	2.00		40.7	50.0	0.3	80.8	40.7	0.00	02/25/2012	
Zinc	10.0		537	500	72	93.0	532.9	0.79	02/25/2012	

EPA 600 4.1.4, 200.7R4.4, METALS BY ICP (TOTAL)

Batch 75482		SampType: MBLK		Units µg/L					
SampID: MB-75482									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		< 2.00	2.00	0	0	-100	100	02/27/2012
Zinc	10.0		< 10.0	10.0	0	0	-100	100	02/27/2012

Batch 75482		SampType: LCS		Units µg/L						Date Analyzed
SampID: LCS-75482										
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit		
Cadmium	2.00		50.5	50.0	0	101.0	85	115	02/27/2012	
Zinc	10.0		518	500	0	103.7	85	115	02/27/2012	

Batch 75482		SampType: MS		Units µg/L					
SampID: 12021051-001CMS									
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Cadmium	2.00		47.2	50.0	0.5	93.4	75	125	02/27/2012
Zinc	10.0		570	500	93.8	95.3	75	125	02/27/2012

Batch 75482		SampType: MSD		Units µg/L				RPD Limit 20		
SampID: 12021051-001CMSD										Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD		
Cadmium	2.00		48.3	50.0	0.5	95.6	47.2	2.30	02/27/2012	
Zinc	10.0		584	500	93.8	98.0	570.4	2.32	02/27/2012	



Quality Control Results

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

STANDARD METHODS 18TH ED. 3030 B, 3113 B, METALS BY GFAA (DISSOLVED)

Batch 75467 SampType: MBLK Units µg/L

SampID: MB-75467

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		< 2.00	2.00	0	0	-100	100	02/28/2012

Batch 75467 SampType: LCS Units µg/L

SampID: LCS-75467

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		14.2	15.0	0	94.4	85	115	02/28/2012

Batch 75467 SampType: MS Units µg/L

SampID: 12021051-001DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	2.00		29.8	15.0	16.2822	89.9	70	130	02/28/2012

Batch 75467 SampType: MSD Units µg/L

SampID: 12021051-001DMSD

RPD Limit 20									Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lead	2.00		29.3	15.0	16.2822	86.7	29.772	1.63	02/28/2012

STANDARD METHODS 18TH ED. 3030 E, 3113 B, METALS BY GFAA

Batch 75447 SampType: MS Units µg/L

SampID: 12021051-001CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	10.0		68.7	15.0	58.139	70.6	70	130	02/27/2012

Batch 75447 SampType: MSD Units µg/L

SampID: 12021051-001CMSD

RPD Limit 20									Date Analyzed
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	
Lead	10.0		73.7	15.0	58.139	104.1	68.732	7.04	02/27/2012



Receiving Check List

<http://www.teklabinc.com/>

Client: Barr Engineering Company

Work Order: 12021051

Client Project: National MTS-25/86-0003

Report Date: 22-Mar-12

Carrier: Rick Schmidt

Received By: EAH

Completed by:

On:

24-Feb-12

Timothy W. Mathis

Reviewed by:

On:

24-Feb-12

Elizabeth A. Hurley

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C 1.4
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>	Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
<div>When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.</div>				
Water - at least one vial per sample has zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials <input checked="" type="checkbox"/>	
Water - TOX containers have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No TOX containers <input checked="" type="checkbox"/>	
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

Any No responses must be detailed below or on the COC.

Custody seal(s) intact on shipping container/cooler. RS 2/24/12



Teklab Chain of Custody

Pg. 1 of 1 Workorder 120 21051

5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618)344-1004 ~ Fax: (618)344-1005

Barr Engineering Co.

Are the samples chilled? ☒ Yes ☐ No with: ☒ Ice ☐ Blue ice

Preserved in ☒ Lab ☐ Field

1001 Diamond Ridge, Suite 1100

Cooler Temp 1.4 Sampler Chris Schulte

Teklab, Inc.
Courier Pick Up 2-24-12

Jefferson City MO 65109

Comments

Invoice to Mark Nations. Results to Allison Olds and Mark Nations, mnations@doerun.com
Matrix is surface water. *Custody Seal intact upon pickup*
Metals = Cd, Pb, Zn

National MTS - 25/86-0003

Contact Allison Olds

eMail aolds@barr.com

Phone 573-638-5007 Requested Due Date Standard

Billing/PO Per contract with Doe Run

Lab Use	Sample ID	Sample Date/Time	Preservative Matrix	pH	T.S.S.	Total Dissolved Solids	Sulfate	Settleable Solids	T.O.C.	Total Metals	Dissolved Metals	Hardness			
12021051 001	Nat-East	2/23/12/12:30	Unpres 5 Aqueous	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Unpres Aqueous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Relinquished By *	Date/Time	Received By	Date/Time
<i>Chris Schulte</i>	2/23/12/15:00	<i>R. Schmidt</i>	2/24/12 8:19
<i>R. Schmidt</i>	2/24/12 9:41	<i>Elizabeth A. Hocking</i>	2/24/12 9:41

* The individual signing this agreement on behalf of client acknowledges that they have read and understand the terms of this agreement and that they have the authority to sign on behalf of client.